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Massey

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# MASSEY REINFORCED CONCRETE PRODUCTS

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DATA AND  
GENERAL INFORMATION  
ON FACTORY-MADE  
CONCRETE PRODUCTS  
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**C. F. MASSEY COMPANY**

Universal Concrete Products Co.  
Canadian Concrete Products Co. *Ltd.*

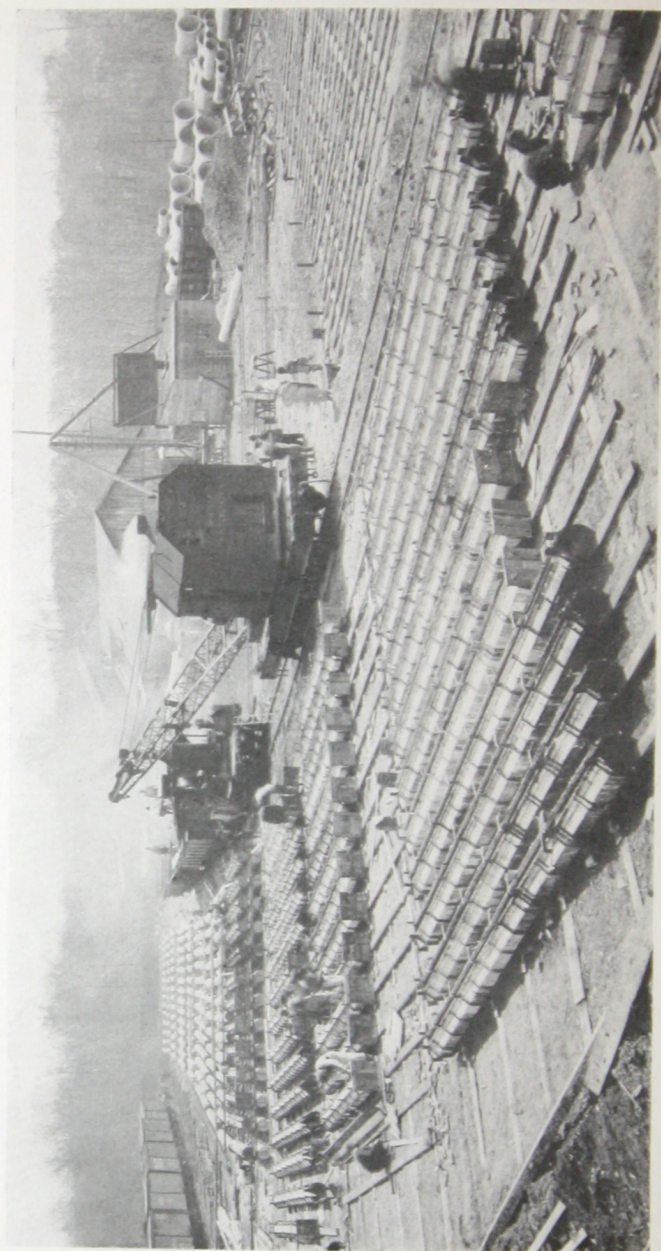
**PEOPLES GAS BUILDING - CHICAGO**





MASSEY  
REINFORCED  
CONCRETE  
PRODUCTS

DATA AND GENERAL  
INFORMATION ON  
FACTORY-MADE  
REINFORCED  
CONCRETE  
CONSTRUCTION



View of Pile Yard of the C. F. Massey Company Memphis Plant





ENGINEERS are realizing more and more every year the importance and economy of building for permanence. Low maintenance is an important factor. Naturally, therefore, the attention of engineering has turned to reinforced concrete. The answer is practically universal — *Concrete for Permanence and Low Maintenance*. Permanent types of structures are being advocated, and concrete is used in hundreds of places where formerly iron, steel and wood were employed.

DURING the last ten years the use of Massey factory-made concrete has been constantly increasing. There are today thirteen Massey plants in operation, turning out concrete products in large quantities. The Massey line includes a wide range of products, covering almost every class of concrete construction, from massive trestle bridges to small battery wells and cable pole foundations — complete reinforced concrete units made in the Massey factories, under expert supervision and inspection, shipped ready for installation.

ADVANTAGES of Massey factory-made concrete are obvious. On many classes of work the cost and difficulty of sending out a crew, materials and equipment, building forms, etc., make the use of concrete inadvisable, if not prohibitive, where from an engineering viewpoint concrete would be the ideal construction.

**M**ASSEY factory-made concrete products mean a materially lower cost, in time, labor and money, and a higher quality of engineering structure. Careful inspection of every piece that is shipped insures uniform quality of work.

**M**ASSEY reinforced concrete units are manufactured under conditions not possible on reinforced concrete work done in the field. The concrete is more carefully mixed and poured, and is more dense than field-cast concrete. The reinforcing is sure of being accurately placed, which is not always true of work done in the field.

**M**ASSEY Culvert Pipe, Bridge Slabs, Trestle Bents and Piling, Battery Wells, Relay Boxes and Posts, Foundations, Crossing Signs, Trunking, Manholes and Ducts, Portable Houses, and the like, are widely known and in general use by the railroads of the country—are accepted as standard on the majority of important railways.

**L**ABOR conditions at the present time, in the railway field particularly, are an important factor in favor of factory-made concrete. Nearly all large railway systems are today using Massey concrete products. A number of railroads that have heretofore manufactured their own supplies are now purchasing from Massey. They have proved that it is more economical and more satisfactory than making their own supplies. Specialization and unexcelled manufacturing facilities enable the C. F. Massey Company to furnish concrete supplies at a very low cost.



WE are prepared to make up any special articles, to any specifications. From ideas and sketches we make up designs and furnish price quotations. Massey line of standards is so complete that selection can be made from stock to meet almost any requirements and we advise consulting our Engineering Department before deciding upon any given installation. In many cases standards can be adapted to meet requirements and considerable savings effected.

Here is a partial list of the Massey lines.

Battery Wells	Outhouses
Battery Boxes	Oil Houses
Battery Chutes	Switchmen's Houses
Cable Posts	Telephone Booths
Relay Posts	Cable Houses
Pipe Carriers	Station Houses
Junction Boxes	Power Houses
Manholes	Roof Houses
Trestle Slabs	Roof Slabs
Piling	*Telegraph Poles
Culvert Pipe	*Ornamental Lighting Standards
Cattle Passes	Sewer Pipe
Smoke Jacks	Mile Posts
Trunking	Fence Posts
Sectional Ducts	Markers
Portable Houses	Curbing

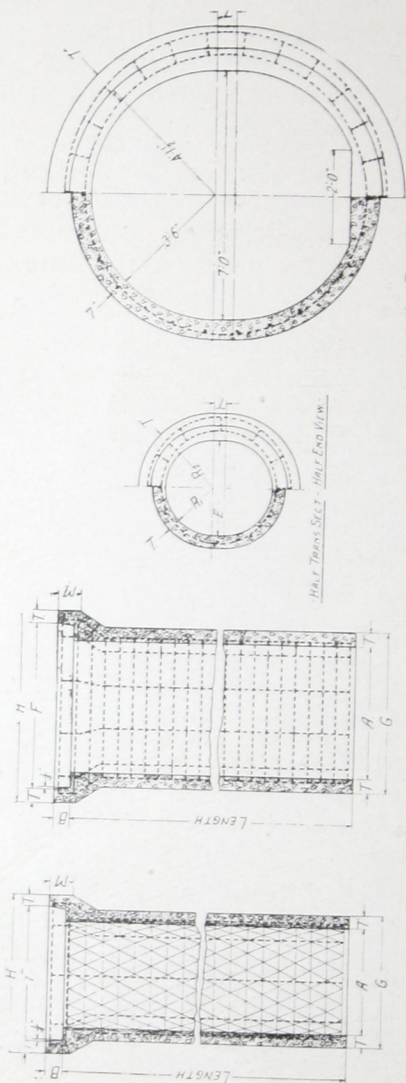
*\*Made by the centrifugal process.*

WE own and control basic patents covering articles of our manufacture, and are in a position to guarantee our customers free and unrestricted use of our products and protect them from damage suits arising from violations of license or infringements.

THE following pages give some general information on some of the Massey lines of reinforced concrete products.

# MASSEY -- REINFORCED -- CONCRETE -- PRODUCTS

## MASSEY STANDARD REINFORCED CONCRETE RAILWAY CULVERT PIPE



Half Trans Sect - Half End View									
E	A	G	F	H	T	M	B	R <sub>1</sub>	R <sub>2</sub>
18"	20 1/2"	2 1/2"	2 1/2"	2 3/4"	2 1/2"	6"	4"	0.9	1.0
20"	22 1/2"	2 3/4"	2 3/4"	2 10/16"	2 3/4"	6"	4"	0.10	1.14
24"	27"	2.9"	2.10"	3.4"	3"	6"	4"	1.0	1.35
30"	32 1/2"	3.4 1/2"	3.5 1/2"	4.0 1/2"	3 3/4"	6"	4"	1.3	1.7
36"	40"	4.0"	4.1"	4.9"	4"	6"	4"	1.6	2.1
42"	48"	4.6"	4.7"	5.3"	4 1/2"	6"	4"	1.9	2.4
48"	54"	5.0 1/2"	5.1 1/2"	5.10"	5 1/2"	6"	4"	2.0	2.4 1/2
54"	59"	5.9"	5.10"	6.8"	5 3/4"	8"	5"	2.3	2.8 1/2
60"	63"	6.3"	6.4"	7.2"	6"	8"	5"	2.6	3.1
66"	74"	7.2"	7.3"	8.3"	6 1/2"	8"	6"	2.10	3.4 1/2
84"	89"	8.9"	8.10"	10.0"	7"	8"	7"	3.6	4.1 1/2
Half Trans Sect - Half End View									
Water Area Square Feet	% Excess Water Per Sq. Foot	Length of Pipe	Weight Per Lineal Foot						
2.08	17.6	8'0"	190						
2.36	16.9	8'0"	233						
3.64	15.5	8'0"	300						
5.60	14.9	8'0"	435						
8.06	14.0	8'0"	590						
10.71	11.3	8'0"	675						
13.97	11.1	8'0"	815						
17.78	11.8	6'0"	1075						
21.92	10.6	6'0"	1200						
28.55	10.4	6'0"	1700						
42.64	10.6	6'0"	2445						



## Massey Standard Railway Culvert Pipe

OUR railway culvert pipe, particularly the pipe known as our standard Class "B," has been in successful use for a number of years and is now better known and in more general use than was formerly the cast iron pipe of the same strength. That it is better goes without saying. This pipe is made with a single line reinforcement, *placed in the region of tension throughout*, which is a Massey feature covered by patents. The economy of such a system of reinforcing is obvious.

The amount of steel used is actually reduced by one-half, compared with the ordinary concrete pipe. Massey Class "B" pipe is designed for a load of 1250 pounds per square foot, applied over its projected mean diameter.

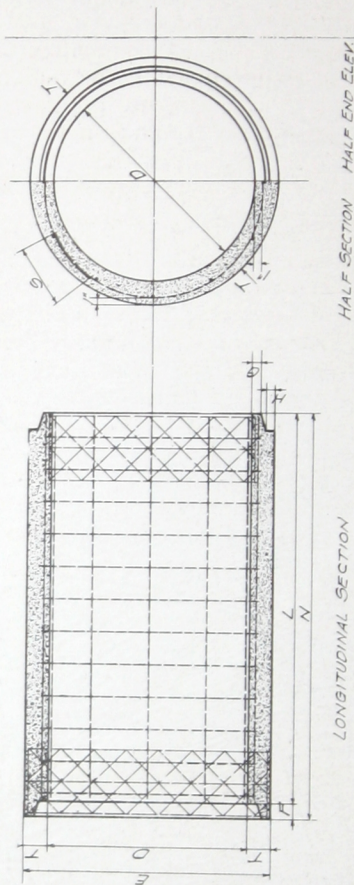
In addition to Class "B", we manufacture in the same form two other classes of pipe known as Class "A" and Class "AA," these having reinforcing that gives them a strength of 750 and 500 pounds per square foot of projected diameter, respectively.

*Our Engineering Department, upon request, will gladly furnish detailed information regarding the various classes of Massey Standard Culvert Pipe.*



# MASSEY -- REINFORCED -- CONCRETE -- PRODUCTS

## MASSEY REINFORCED CONCRETE HIGHWAY CULVERT PIPE



HALF SECTION HALF END ELEV.

LONGITUDINAL SECTION

D	T	E	F	G	H	S	N	L	WATER AREA	WT PER FT.
12"	2"	1/4"	1/8"	3/8"	5/8"	9"	4 1/2"	4'0"	.79 sq. ft.	91 lbs.
15"	2 1/2"	1/2"	3/8"	5/8"	3/4"	9"	4 1/2"	4'0"	1.25 sq. ft.	127 "
18"	2 1/2"	1 1/4"	1"	1 1/8"	7/8"	9"	4 1/2"	4'0"	1.77 sq. ft.	168 "
24"	3"	2 1/2"	2"	1 3/4"	1 1/2"	9"	4 1/2"	4'0"	3.14 sq. ft.	265 "
30"	3 1/2"	3 1/4"	2 1/2"	2 1/4"	1 3/4"	10"	4 1/2"	4'0"	4.91 sq. ft.	384 "
36"	4"	3 3/4"	3 1/4"	2 3/4"	1 3/4"	10"	4 1/2"	4'0"	7.07 sq. ft.	524 "
42"	4 1/2"	4 1/4"	3 3/4"	3 1/4"	2"	10"	4 1/2"	4'0"	9.62 sq. ft.	685 "
48"	5"	4 3/4"	4 1/4"	4"	2 1/4"	10"	4 1/2"	4'0"	12.57 sq. ft.	867 "



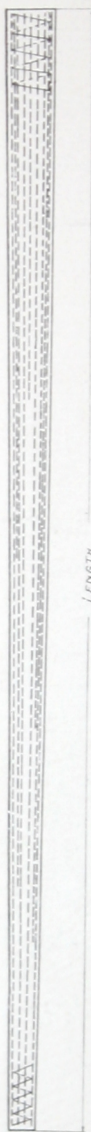
## Massey Highway Culvert Pipe

RECENTLY we have been receiving repeated inquiries for our pipe to be used in highway work. Our standard culvert pipe is heavier than is required for highway culverts and we have developed a pipe, built in 4-foot sections, that is particularly adapted to highway work. Loadings on such pipe are not as high as in railroad work; this permits a thinner wall section, which together with the shorter length, makes them very easy to handle.

This class of Massey Culvert Pipe is being used where formerly expensive culverts were built. It not alone saves the high initial cost, but there is a big saving in the cost of installation. It can be put in place in a fraction of the time that was formerly required to construct culverts, which means that the road is not obstructed for any length of time while construction work is being done. This Massey standard has proved very popular and is being widely used. Low in cost, requiring no maintenance, practically everlasting—fire-proof, non-corrodible, not affected by electrolysis, etc. It is the most practical type of highway culvert yet developed.

*Our Engineering Department will gladly furnish, upon request from interested parties, blue prints or any other information desired.*





LENGTH.

LENGTH	GROUND LINE TO BUTT.	CLASS 4000.			CLASS 3000.			CLASS 2000.			CLASS 1500.			CLASS 1000.		
		d	D	Approx Wt.	d	D	Approx Wt.	d	D	Approx Wt.	d	D	Approx Wt.	d	D	Approx Wt.
20'-0"	4'-0"	8½"	13½"	1720*	7½"	12½"	1390*	7"	12"	1180*	6½"	11½"	1080*	5½"	10½"	865*
25'-0"	5'-0"	8½"	14½"	2440*	7½"	13½"	1940*	7"	13½"	1670*	6½"	12½"	1420*	5½"	12"	1180*
30'-0"	5'-6"	8½"	15½"	3310*	7½"	15½"	2590*	7"	14½"	2230*	6½"	13½"	2120*	5½"	13½"	1550*
35'-0"	6'-0"	8½"	17"	4340*	7½"	16½"	3340*	7"	15½"	2830*	6½"	15½"	2710*	5½"	14½"	1950*
40'-0"	6'-6"	8½"	18½"	5550*	7½"	17½"	4230*	7"	17"	3770*	6½"	16½"	3530*	5½"	15½"	2320*
45'-0"	7'-0"	8½"	19½"	7450*	7½"	19½"	5230*	7"	18½"	4680*	6½"	17½"	4420*	5½"	17"	2900*
50'-0"	7'-6"	8½"	20½"	8400*	7½"	20½"	6380*	7"	19½"	5750*	6½"	18½"	5450*	5½"	18½"	3440*
55'-0"	8'-0"	8½"	22"	10000*	7½"	21½"	7680*	7"	20½"	6960*	6½"	20½"	6590*	5½"	19½"	4070*
60'-0"	8'-6"	8½"	23½"	12400*	7½"	22½"	8800*	7"	22"	8340*	6½"	21½"	7750*	5½"	20½"	4640*



## Hollow Reinforced Ornamental L

Made by the Imp  
Light in Weight; G  
Practically Indestr

**M**ASSEY Hollow Reinforced Ornamental Lighting poles are in severe service conditions. They are light in weight, and are trained to bending makes these poles extremely strong to breaking loads, they will give maximum life without failing sufficient ground. Once installed they require no maintenance; they are perfectly straight and uniform in color, an exceedingly neat appearance and quality, due to the method

A special mixture of concrete is compacted in metal form by a special machine. The centrifugal force presses the concrete against the inside of the form, creating a water-proof mass, of great strength. The thickness of the concrete is far greater than that of the ordinary concrete.

Write our Engineering Department on Reinforced Concrete Testing Standards. We have some tests which have been made and send upon request to parties.

*NOTE*—Poles are guaranteed to swing to their Class number, shown on the label, when the load is applied 2 ft. from the top of the pole to the depth shown.



# ey Concrete Poles and Setting Standards

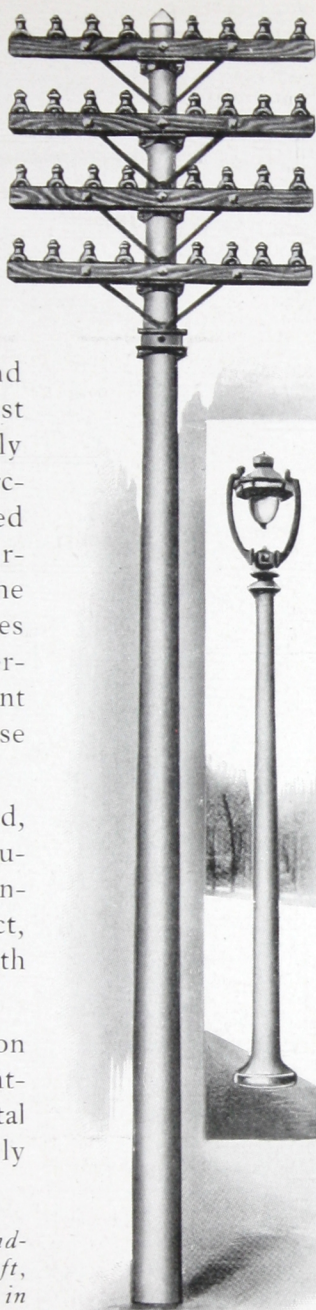
Centrifugal Process;  
Strength and Flexibility;  
and Low in Cost.

Concrete Telegraph Poles and Standards will withstand the most severe conditions. Though hollow, they are comparatively strong and flexible. The method of reinforcement is simple and flexible. Even when subjected to a point of permanent deformation, they do not precipitate the wires to the ground. Concrete Telegraph Poles are practically indestructible. Perforations and taper, these poles present no difficulty. The concrete is a very dense material, and is frost-proof.

The ingredients, carefully graded, are placed in a specially constructed centrifugal mold. A force developed drives the concrete into the forms, making a hard, compact, and strong material with an ultimate strength of 10,000 pounds per square foot of poured concrete.

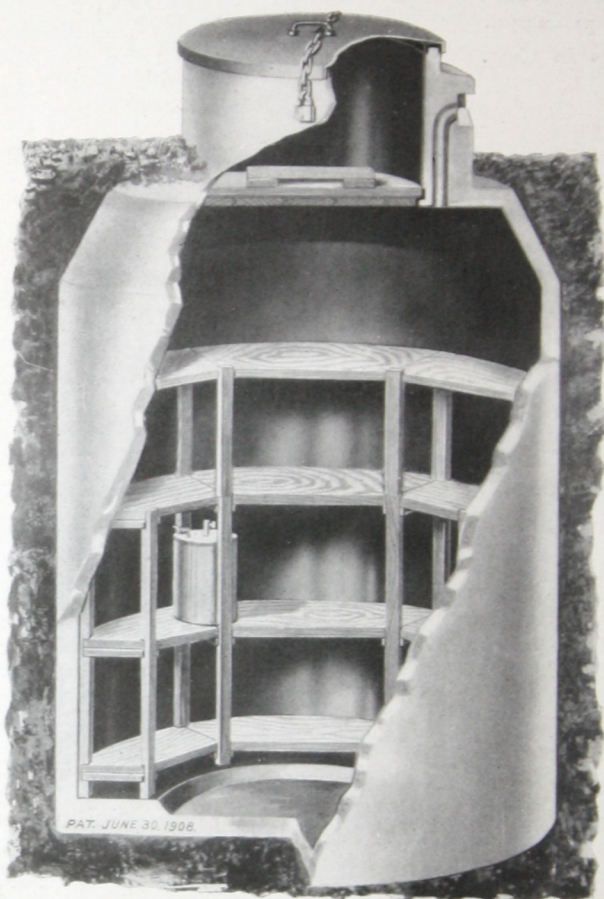
For complete information on Concrete Telegraph Poles and Ornamental Light Standards, interesting data on experimental tests of these poles, which we will gladly furnish to interested parties.

Stand a pull equal in pounds corresponding to the "Approx Wt." in the table at the left, at the top of the pole, with the butt buried in the ground in the second column of the table.



## Massey Battery Wells

Made in Types and Sizes  
To Fit All Requirements



THIS battery well is one of the many Massey Standards, designed for use in extremely cold climates. All Massey wells have acid-proof lining, securely fastened to the concrete, and when desired all shelving and wood work is impregnated with paraffine.



## Massey Battery Wells

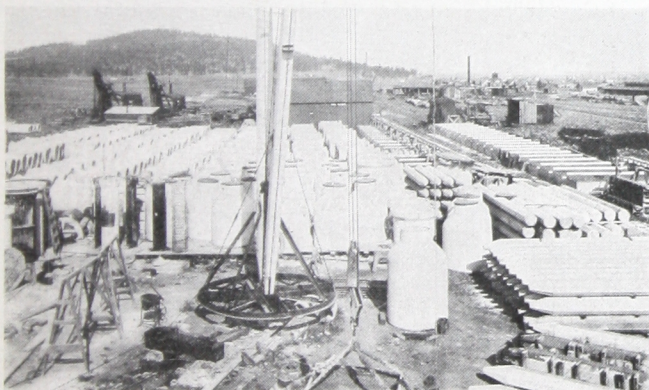
MASSEY Battery Wells are less expensive than other efficient means of housing electrical equipment. Together with our cable posts and trunking they form an economical, elastic and efficient system, easily and quickly installed, which is absolutely permanent and requires practically no expense to maintain.

Massey Battery Wells come in varying sizes and styles. From our complete line of standards can be selected styles to fit practically any requirements.

Massey Battery Wells have been in successful use for many years on practically all of the important railway systems. They are now accepted as standard equipment on most of the large railroads.

When planning a system in which battery wells, chutes, cable and relay posts, foundations and the like are to be used, consult our Engineering Department which will furnish complete data and suggestions concerning selections and the most economical use of these products.

*Massey Battery Wells, as are all other products manufactured by the C. F. Massey Company, are covered by basic patents, and we are in a position to guarantee our customers free and unrestricted use of these products, and protect them from damage suits arising from violations of license or from infringements.*



## Massey Portable Concrete Houses

Monolithic—Cast in One Piece—Shipped  
Ready to be Placed in Service



MASSEY Portable Reinforced Concrete Houses are now in such general use that they require no introduction. They are being used as telephone booths, watchmen's shanties, oil houses, out-houses, cable test houses, transformer stations, and so forth. They are cast in one piece, designed with adequate reinforcement. The exterior surface is finished in a natural cement color and the interior with a special white acid-proof paint. Windows, doors, frames and trim are made of wood. When it is desired, however, we furnish steel doors, and windows equipped with either plain or wire glass. The houses are well finished in every respect and are attractive in appearance. Concrete ventilators which can be used either for ventilation or as smoke stacks are furnished on all buildings requiring them.

Telephone booths are equipped with means of fastening the telephone to the wall by wooden screws; suitable entrances for wires are provided; also shelf, drawer and battery rack are furnished when they are required.

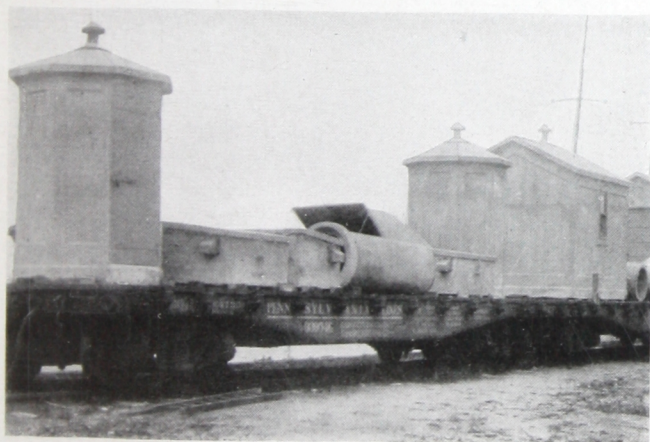


## MASSEY -- REINFORCED -- CONCRETE -- PRODUCTS

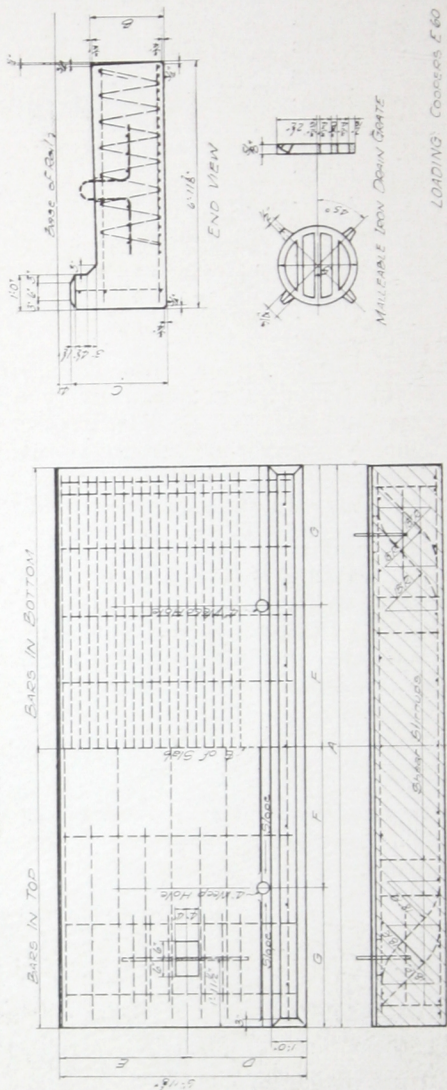
Tank houses and all of our other houses for special purposes, are furnished with all equipment and provisions necessary so that installations are quickly and easily made and no extras are necessary.

Massey Houses can be adapted for almost any purpose. They have proved very popular because they are easily handled and can be moved from place to place. They can be picked up by derrick and placed on a flat car, and put in service without any special preparation except leveling the ground where they are to be placed. In case it is desirable to move the houses, this is easily accomplished. Massey Portable Houses are comparatively low in cost; they are permanent, practically indestructible, and require little or no maintenance.

Further information on Massey Portable Houses will gladly be furnished upon request. The Massey line of standard reinforced concrete houses includes many styles and sizes, and selections can be made to meet practically any requirements for this type of building.



MASSEY REINFORCED CONCRETE BRIDGE SLABS



LOADING CONCRETE 60  
IMPACT 50% CONCRETE  
SHEAR 40° AND 90°  
BOND 100%  
COMPRESSION 650 STEEL  
TENSION 16000

PENTS	A	B	C	D	E	F	G	HEIGHT OF SLAB
10.0 CTS	9'11"	1'6 1/2"	2'2 1/2"	3'5 1/2"	3'8"	2'6 1/2"	2'5 1/2"	17,000 LBS
12.0 "	11'1"	1'8"	2'4"	3'7 1/2"	3'10"	2'8 1/2"	2'7 1/2"	21,700 "
14.0 "	13'11"	1'10"	2'6"	3'9 1/2"	3'12"	3'0"	2'9 1/2"	27,700 "
16.0 "	15'11"	2'1"	2'9"	3'11 1/2"	3'14"	3'2"	3'1 1/2"	36,000 "
18.0 "	17'11"	2'2"	3'0"	3'13 1/2"	3'16"	3'3"	3'2 1/2"	45,000 "
20.0 "	19'11"	2'4"	3'2"	3'15 1/2"	3'18"	3'5"	3'4 1/2"	60,500 "



## Massey Reinforced Concrete Bridge Slabs, Piling and Trestle Bents

**R**AILROAD engineers are fast realizing the importance of reinforced concrete in modern railroad construction. The principal railroads of the country are replacing their deteriorating wooden and metal structures with reinforced concrete, which obviates incessant repainting, repairing and renewing.

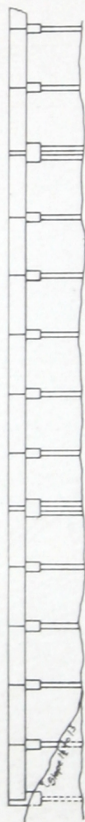
Massey Reinforced Concrete Bridge Slabs, Piling and Trestle Bents have been adopted by a large number of important railroads as standard. The use of factory-made concrete units is more economical and gives a stronger, better structure. The first cost is lower; it materially reduces the amount of labor required for construction.

Massey factory-made products are manufactured under ideal conditions for making reinforced concrete, and every stage of the work is under expert supervision and inspection, insuring uniform quality thruout the structure. Practically the only valid objection that has ever been raised to the use of concrete construction, the difficulty of getting uniform quality in every batch of concrete, correct placing of reinforcing, etc., is obviated by the use of Massey factory-made units.

The time and labor required to erect a concrete bridge of the Massey factory-made type, is materially less than for any other type of permanent structure.

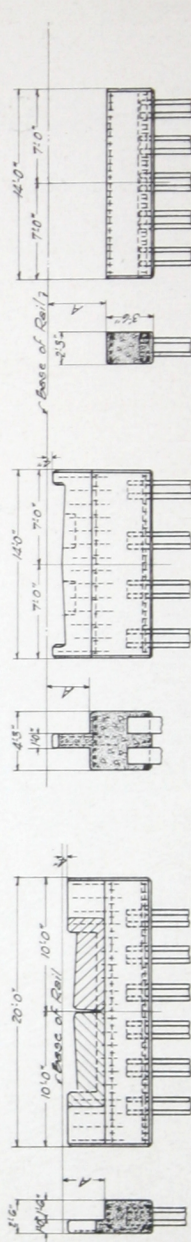


# MASSEY REINFORCED CONCRETE PILING AND TRESTLE BENTS



TYPICAL CONCRETE PILE TRESTLE

LENGTH OF SPAN	10'	12'	14'	16'	18'	20'
A	2'-6 3/4"	2'-8"	2'-10"	3'-1"	3'-3"	3'-10"

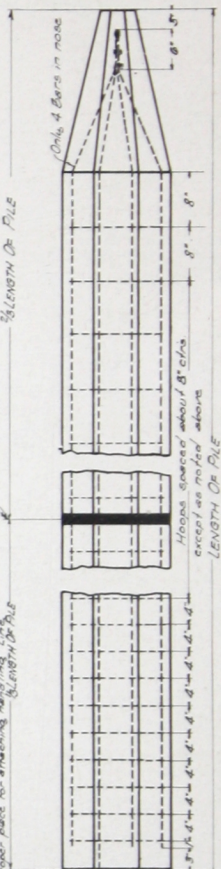


END BENT

Pile to be marked with black band at this point to indicate proper place for attaching handling line.

ANCHOR BENT

INTERMEDIATE BENT



LENGTH OF PILE	WEIGHT PER FT.
20 TO 25 FT.	235 Lbs.
26 " 30 "	227 "
31 " 35 "	228 "
36 " 40 "	230 "
41 " 45 "	235 "



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## MASSEY -- REINFORCED -- CONCRETE -- PRODUCTS

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Massey Standard Bridge Slabs are designed for Cooper's E-60 loading, and can be furnished in lengths up to twenty-four feet.

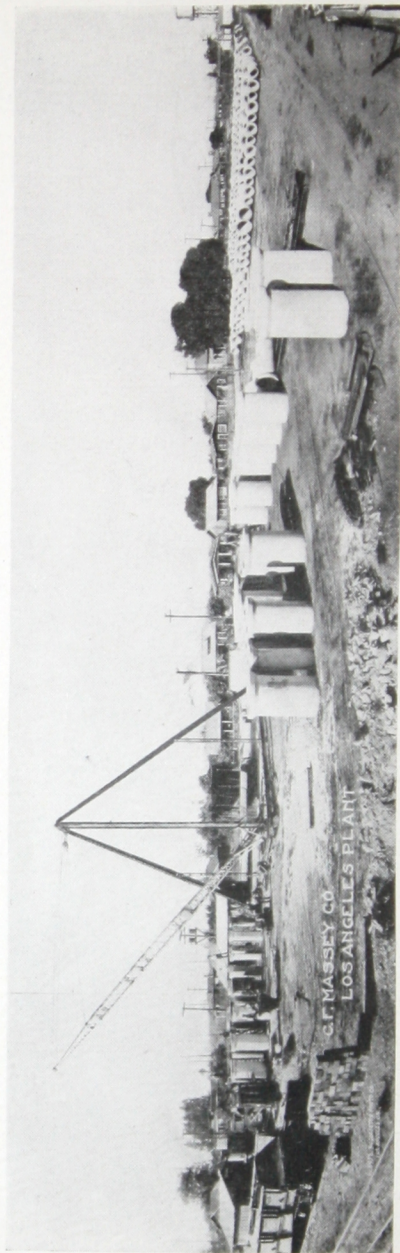
Use of Massey Slabs is not confined to the use of pile trestles. They work out equally well for pier trestles and culverts, and in some instances have been used very satisfactorily for bridge floors over arches, supported by spandrel walls.

We have developed a lighter type of bridge slab for ballast floors of steel bridges, that are easily handled by a derrick. Installation is rapid and the labor cost is low, and they make a permanent floor. Small gangs are required to do the work which, especially at the present time, is an important factor.

Massey Reinforced Concrete Piling are being extensively used, and are becoming standards on many railroads, and are being regularly accepted by the United States Government. Massey Concrete Piling forms a trestle structure that is very economical. In many cases where Massey Piling has been used the structure has cost less than half the cost of other types of permanent construction.

*Send for complete information on Massey Bridge Construction. We can doubtless offer suggestions that will mean a more economical bridge budget in the future.*





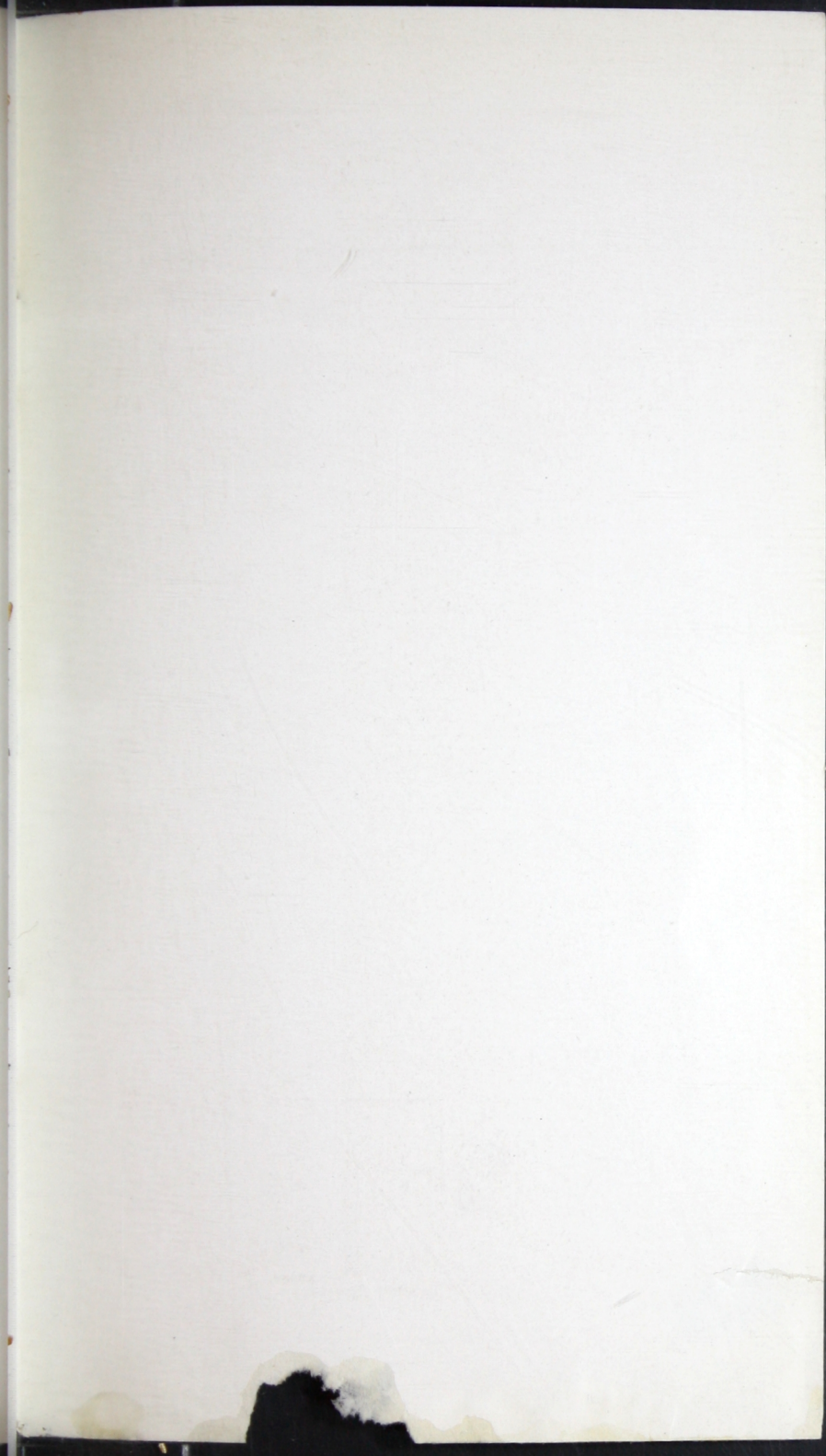
**D**ISTRIBUTION of our manufacturing plants and storage yards at advantageous shipping centers enables us to furnish products at convenient f. o. b. points, saving the purchaser much valuable time on deliveries and greatly reducing transportation costs. We always carry on hand a well seasoned stock of our standard products from which deliveries can be made on short notice.

**C. F. MASSEY COMPANY, General Office, Peoples Gas Building, Chicago**

**PLANTS LOCATED AT**

Newark, N. J.	Meridian, Ala.
Youngstown, O.	Dallas, Texas
Columbia, S. C.	Kansas City, Mo.
Chatham, Ont.	Los Angeles, Cal.
Minneapolis, Minn.	Spokane, Wash.
Chicago, Ill.	Memphis, Tenn.
	Milwaukee, Wis.





*Factory-Made*  
*Reinforced Concrete*  
*for Economy of*  
*Construction,*  
*Permanence, and*  
*Elimination of*  
*Maintenance.*